

ABSTRACT OF THE DISCLOSURE

LDPC (Low Density Parity Check) coded modulation hybrid decoding using non-Gray code maps for improved performance. Check node updating and symbol node updating are successively and alternatively performed on bit edge messages for a
5 predetermined number of decoding iterations or until sufficient degree of precision is achieved. The symbol node updating of the bit edge messages uses symbol metrics corresponding to the symbol being decoded and the bit edge messages most recently updated by check node updating. The check node updating of the bit edge messages uses the bit edge messages most recently updated by symbol node updating. The symbol node
10 updating computes possible soft symbol estimates. LDPC coded modulation hybrid decoding can decode an LDPC-BICM (Low Density Parity Check-Bit Interleaved Coded Modulation) signal having a symbol mapped using non-Gray code mapping. By using the non-Gray code mapping, a performance improvement is achieved over an only Gray code mapping system.